

Ultimax-iTM

Multipurpose Flat Panel Detector system



Introduction

Performing myelograms in conventional R&F rooms with stationary image detectors is challenging. Clinicians have to physically move the patients to image the appropriate anatomy in the desired views. In contrast, the unique design of the Ultimax-i Flat Panel Detector (FPD) system incorporates a C-arm that rotates around the patient, enabling the user to eliminate the need to move the patient into oblique and lateral positions to acquire the desired views. As a result, clinicians can perform myelograms while prioritizing safety and efficiency. Dr. Williams at The Spine Hospital of Baton Rouge, La. stated: "This is the optimal system for completing routine and complex myelograms because the C-arm moves around the patient."

"Having the ability to control the C-arm from the control room or from the remote cart has enabled us to significantly reduce the dose to the operator," added Ryan Beadle, the technologist on Dr. Williams's team. Not only does Ultimax-i FPD help clinicians prioritize safety and efficiency, it also expands the capabilities of a limited R&F room space, making advanced imaging and the performance of interventional radiology procedures truly attainable.

History

A 62-year-old male patient with a previous L4-L5-S1 fusion presented with severe pain radiating down his legs. A Lumbar myelogram was ordered.

Technology

Ultimax-i FPD features:

- **C-arm with Tilting Table for Both AP and PA Projections.** The C-arm moves in the RAO/LAO and CRA/CAU directions with longitudinal, tabletop lateral, and table vertical movement. Both AP and PA projections can be changed by easy operation.
- **Maximum Utility with Both Remote and In-Room Control.** This system has both an optional remote and in-room control console. The tableside console can be attached to the tabletop.
- **Dose Management.** No test exposures, while pulsed fluoroscopy functions, variable frame rate, fluoroscopic dose selection, and Ta beam hardening filter for fluoroscopy are

system features for lower patient dose. The new FPD has a 17 in. x 17 in. large field of view (FOV). Images free of distortion from the center to the edges can be obtained. The new FPD system makes it possible to acquire high-quality images with superior MTF characteristics and without glare. High-throughput multitasking via the digital imaging system allows more exams in one day. During digital image acquisition of a patient, the same patient's images or the previous patient's images can be filmed, archived, or post-processed at the same time.

- **Windows® 10 User Interface for the Digital Acquisition Station.** This menu/icon-driven operation is based on Windows 10, which makes the system easy to operate.

- **Versatile Application.** The Ultimax-i system can also perform general angiographic exams. The digital imaging system (with angiographic function) supports digital angiography (DA) acquisition with up to 15 frames per second (fps) and a maximum peak pixel opacification roadmap. The system can also perform digital subtraction angiography (DSA) up to 7.5 fps.

- **Digital Network.** The digital imaging system provides DICOM storage capability as standard.



Procedure

The patient was placed in the prone position with shoulder supports and hand holds placed for patient comfort. Contrast media was introduced into the subarachnoid space using normal sterile technique. Once this was completed, the clinician went to the control room while the technologist took routine myelogram views of the entire spine behind the in-room shielding. The physician reviewed images and made adjustments to positioning from the control room using the remote capabilities of the equipment. The unique ability of Ultimax-i FPD to move the C-arm around the patient and not move the patient enabled the clinician to significantly reduce their procedure time. At one point the patient was placed in a standing position and turned to a standing lateral position on the foot board. Standing flexion and extension images were taken with no issues. The patient was then placed back into a prone position and the system was rotated into a 30° head down position to complete cervical images. Finally, the patient was easily moved to a stretcher with the help of the patient transfer button. The position switch is a one-touch button that brings the Ultimax-i table to its lowest position, minimizing the strain on the staff as they safely transfer the patient to a stretcher.

Findings

The high image quality and large coverage area of the Ultimax-i's 17 in. x 17 in. detector allowed the physician to obtain the diagnostic information he needed without the need for additional unnecessary views. The ease of use of the Ultimax-i also allowed him to effectively and safely visualize the flow of the contrast media through the spinal canal without discomfort to the patient. The large FPD enabled the clinician to image the entire FOV without compromising image quality. The ability to image over the area of pathology while maneuvering the C-arm around the patient enabled the technologist to image the appropriate area for the radiologist to complete his diagnosis.

Conclusion

The Ultimax-i's unique ability to move around the patient with Canon Medical Systems' C-arm technology makes it the ideal system for completing myelograms and many other procedures. With optimum image quality and a large 17 in. x 17 in. detector the Ultimax-i provides the ultimate solution for a multipurpose imaging system with remote user capabilities.

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